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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,946	10/05/2005	Seok Koo Kim	LEE-0033	3418

23413 7590 04/04/2007

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EXAMINER	
MARTIN, ANGELA J	
ART UNIT	PAPER NUMBER
1745	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,946	KIM ET AL.	
	Examiner	Art Unit	
	Angela J. Martin	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/5/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 October 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/5/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Fig. 1 is difficult to see (ink is too light). Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim, Korean Pat. 1020000014672.

Kim teaches anode active material slurry comprising: (a) a carbon-based anode active material, that is capable of lithium ion intercalation/deintercalation; (b) a conductive agent; (c) a binder comprising a styrene-butadiene-based polymer resin; (d) a thickener comprising a cellulose-based or an acrylate-based resin; (e) a dispersant comprising a polymer backbone capable of surface-adsorption and a side-chain having non-ionic surfactant properties; and (f) water (abstract). A lithium secondary cell

comprising an anode obtained by using the anode active material slurry according to claim 1 (abstract).

Thus, the claims are anticipated.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3-5, 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawakami et al., U.S. Pat. Application Pub. 2006/0040182 A1.

Kawakami et al., teach anode active material slurry comprising: (a) a carbon based anode active material, that is capable of lithium ion intercalation/deintercalation; (b) a conductive agent; (c) a binder comprising a styrene-butadiene-based polymer resin; (d) a thickener comprising a cellulose-based or an acrylate-based resin; (e) a dispersant comprising a polymer backbone capable of surface-adsorption and a side-chain having non-ionic surfactant properties; and (f) water (0110, 0134). The anode active material slurry according to claim 1, wherein the polymer backbone in the dispersant is polymethylmethacrylate (PMMA) or polyvinylidene fluoride (PVdF)(0111). The anode active material slurry according to claim 1, wherein the side-chain having non-ionic surfactant properties in the dispersant is at least one selected from the group

consisting of polyethylene oxide (PEO-based materials (0134). The anode active material slurry according to claim 1, wherein the dispersant is a copolymer formed of polymethylmethacrylate and polyethylene oxide (0134). A lithium secondary cell comprising an anode obtained by using the anode active material slurry according to claim 1 (abstract).

Thus, the claims are anticipated.

6. Claims 1, 3-5, 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Asao et al., U.S. Pat. Application Pub. 2004/0248011 A1.

Asao et al., teach anode active material slurry comprising: (a) a carbon based anode active material, that is capable of lithium ion intercalation/deintercalation; (b) a conductive agent; (c) a binder comprising a styrene-butadiene-based polymer resin; (d) a thickener comprising a cellulose-based or an acrylate-based resin; (e) a dispersant comprising a polymer backbone capable of surface-adsorption and a side-chain having non-ionic surfactant properties; and (f) water (0074). The anode active material slurry according to claim 1, wherein the polymer backbone in the dispersant is polymethylmethacrylate (PMMA) or polyvinylidene fluoride (PVdF)(0097). The anode active material slurry according to claim 1, wherein the side-chain having non-ionic surfactant properties in the dispersant is at least one selected from the group consisting of polyethylene oxide (PEO-based materials (0097). The anode active material slurry according to claim 1, wherein the dispersant is a copolymer formed of polymethylmethacrylate and polyethylene oxide (0097). A lithium secondary cell

comprising an anode obtained by using the anode active material slurry according to claim 1 (abstract).

Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al., U.S. Pat. Application Pub. 2006/0040182 A1 or Asao et al., U.S. Pat. Application Pub. 2004/0248011 A1.

Kawakami et al., teach an anode material as described above.

Asao et al., teach an anode material as described above.

The prior art of record does not disclose the dispersant ranges and does not disclose the molecular weight of the dispersant.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the dispersant ranges and the molecular weight of the dispersant because a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable

might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Adachi et al., U.S. Pat. Applicn. Pub. 2005/0008940 A1 teach a battery comprising a lithium battery. Kawamura et al., U.S. Pat. Applicn. Pub. 2004/0191630 A1, teach a lithium secondary battery.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJM